

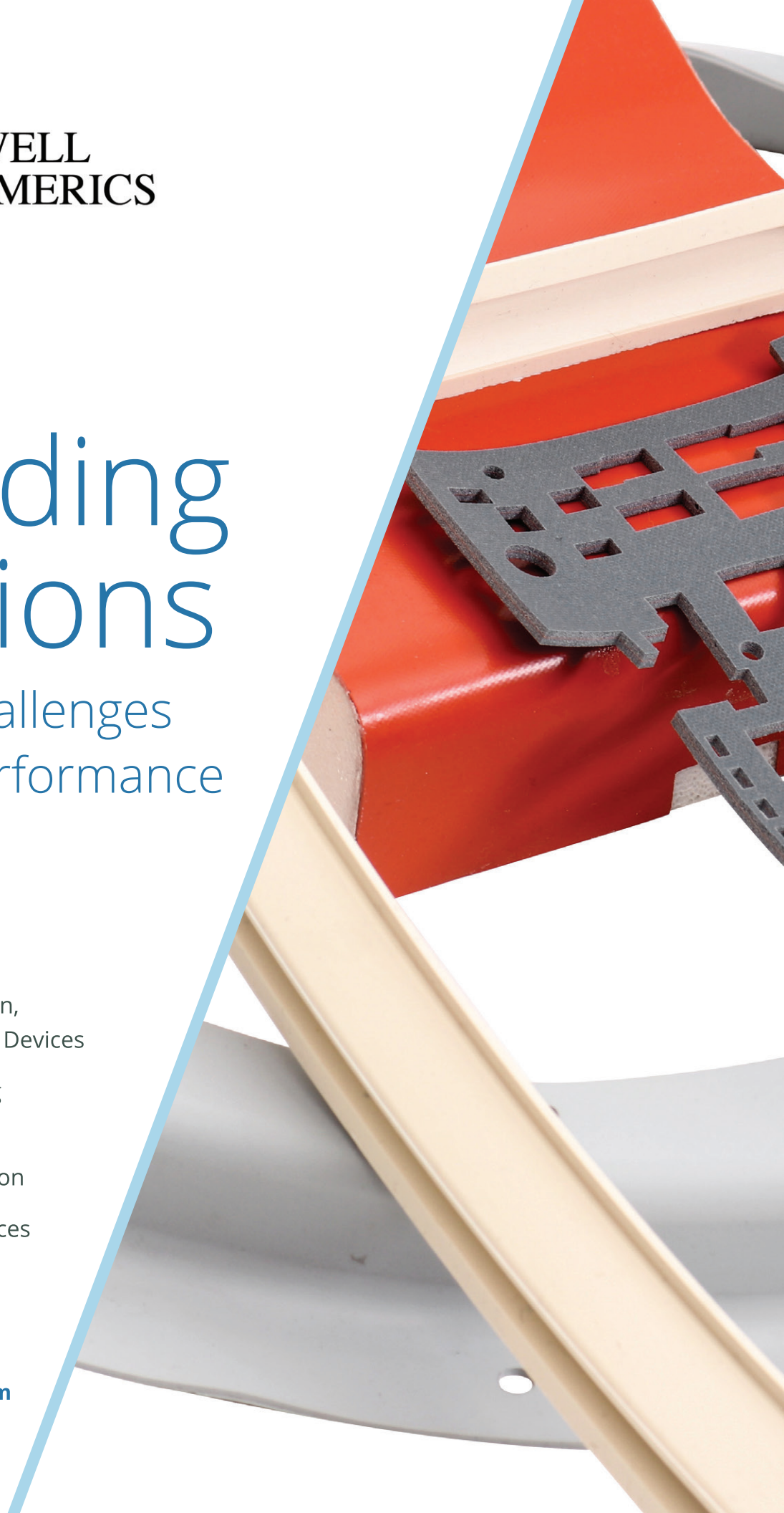


# Providing solutions

to design challenges  
with high performance  
elastomers

- Aerospace and Defense
- Portable Data Acquisition,  
Measuring, and Sensing Devices
- Advanced and Emerging  
Technologies
- Analytical Instrumentation
- Medical Diagnostic Devices
- Airflow Management

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## About Us

Stockwell Elastomerics, Inc. provides high performance elastomeric components for demanding requirements in the technology equipment sector. Our mission is to improve the competitiveness of customers in our core markets by providing engineering support, from application engineering assistance and material sampling to prototyping and fast-turn initial production.

To learn more visit  
<https://www.stockwell.com>

### **Design Assistance, Prototyping, and Fast-Turn Initial Production to Support Engineering Requirements**

Stockwell Elastomerics, Inc. combines customer service, engineering, manufacturing, and prototyping facilities in one central location. Onsite production facilities enable responsiveness, but our true differentiator is a company-wide understanding that the rubber gasket or cushioning pad is often the last component specified. We realize the success of our customers' product introductions may depend on our performance. Our sales and applications engineering team provides design assistance and years of field-proven, on-the-job experience with elastomers and product-performance requirements. What's more, we tap into our vendor partners' technical resources and strive to continually improve our capabilities.

### **Production Capabilities Dedicated to the Needs of the Technology Equipment Sector**

Our onsite production capabilities include compression and injection molding of silicone rubber, die cutting, adhesive lamination, water jet cutting, flash cutting, and slitting to width. While many of our competitors have chosen offshore facilities to reduce production costs, Stockwell Elastomerics employs Lean business practices to reduce setup times, ensure product integrity, and permit lower-quantity production runs. And with our new warehouse, our investment in material inventory of core products enables rapid response. We also strive to reduce waste from our production systems to provide improved lead times and value for our customers in the technology equipment sector.



## Our Capabilities

### **Dedication to Broad Production Capabilities versus High-Volume Capacity**

Stockwell Elastomerics has chosen to maintain broad production capabilities that enable in-house, fast-turn manufacturing of prototypes and low-to-mid volume production runs to serve the needs of customers in the technology equipment sector. Our broad range of capabilities enables multiple approaches in solving design challenges and supporting initial production requirements. Stockwell Elastomerics has focused its capabilities to sustain specialty production rather than production for high-volume commodity components.

### **Our on-site production capabilities include:**

#### **Toolless Water Jet and Flash Cutting to Support Prototyping and Production**

Our water jet and flash-cutting capabilities support prototype sampling, initial production, and production requirements without the need for a die. Our water jet systems use pure water—no abrasive additives that could contaminate the component edges during cutting. Foam and sponge rubber from 0.032" to 4.00" thick and solid rubber up to 1.00" thick can be cut by water jet. The flash-cutting (knife-cutting) process converts materials up to 0.250" thick with tight tolerance control similar to water jet. One key difference is that the flash cutter allows for kiss-cut part fabrication. This can be a beneficial handling aid for customers, and having the ability to prototype this end product is invaluable.

#### **Die Cutting of Gaskets and Cushioning Pads**

Often, the gaskets we provide as water jet or flash-cut samples are subsequently tooled up for die cutting production runs, which can be less costly than water jet and flash cutting. The same electronic drawing file used to program toolless paths can be used to produce a steel rule cutting die. Stockwell Elastomerics provides gaskets and cushioning pads that are die cut through or kiss cut on the adhesive liner (to simplify assembly).

#### **Adhesive Lamination onto Silicone Rubber, Poron® Cellular Urethane, and other Solid and Sponge Rubber Materials**

Pairing the appropriate adhesive with a substrate can be just as important as the substrate itself. Stockwell Elastomerics has developed several proprietary priming systems to enable the lamination of pressure-sensitive adhesives onto silicone rubber and other low surface-energy elastomers. The ability to laminate

acrylic adhesive to silicone-based substrates delivers performance and cost benefits to an elastomeric composite structure. This expertise sets Stockwell apart from other converters.

#### **Liquid Injection Molding (LIM)**

LIM enables production of silicone rubber components from 10 durometer Shore A (very soft) to 80 durometer Shore A (firm). The fast-cure cycles of Liquid Silicone Rubber (LSR) enable the use of single or multiple-cavity molds to support various levels of production. Stockwell Elastomerics also uses cryogenic de-flashing to remove parting line flash, further improving the sealing integrity and speeding production.

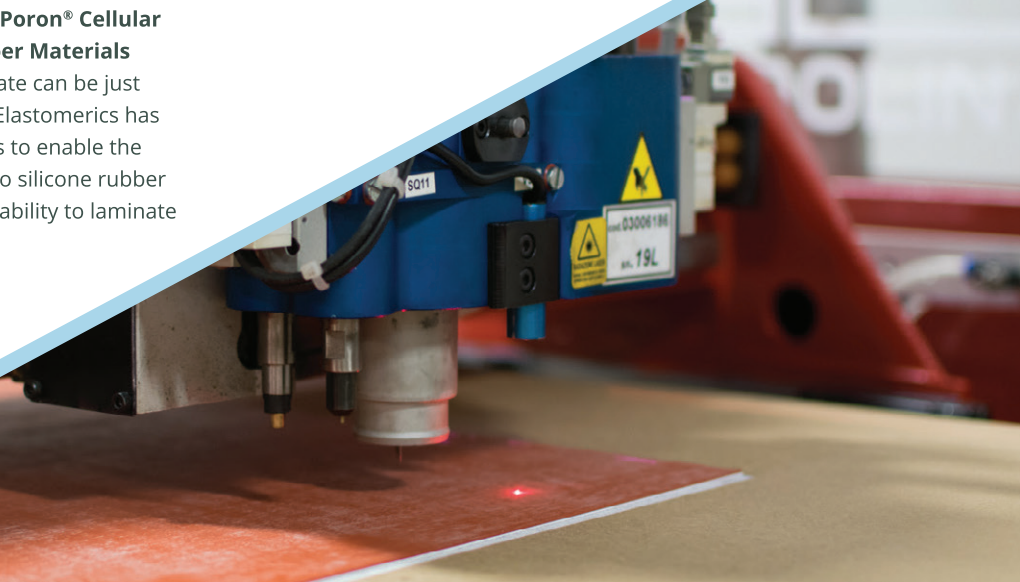
#### **Compression Molding**

This manufacturing process is used to mold complicated three-dimensional gaskets from specialty silicones, fluorosilicones, fluoropolymers, and electrically conductive compounds in support of technical applications in the medical equipment, instrumentation, and aerospace industries. These applications typically have unique, low-volume requirements that involve specialized materials where a compression-molded solution is the right fit for the critical need.

#### **Custom Fabrication**

Stockwell Elastomerics has a long history of developing timely solutions on design projects that require functionality of dissimilar materials in bonded cushioning pads or specialty gaskets. Our technical sales and applications groups are staffed with engineers who are ready to work with your team to identify ideal, cost-effective solutions.

**We welcome customer visits to demonstrate our capabilities and determine how we can support your development and production needs.**







# Aerospace and Defense

Stockwell Elastomerics is proud to be a long-term provider of engineering solutions to the aerospace and defense industries.

## Gaskets for Defense Electronics and Mechanical Systems

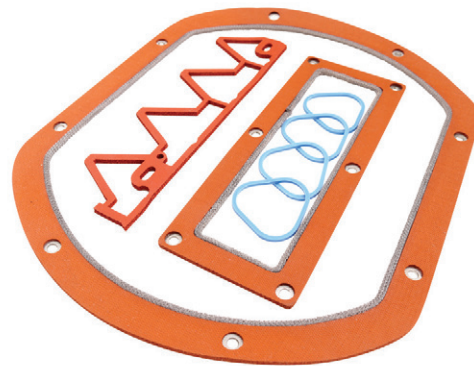
Silicone and fluorosilicone compounds are now being specified as gasket materials to meet the high-performance environment for today's military, where conditions often push the limits of commercially available materials. These performance elastomers are capable of being compounded to have electrically conductive (EMI shielding) and thermally conductive properties.

Today, silicone materials can be found in missile defense systems, portable combat support equipment, and battery door and component cover gaskets. They also find use as cushioning pads to protect ground- or vehicle-mounted communication, sensing equipment, data acquisition systems, and mechanical munition systems.

## Gaskets for Aircraft and Aerospace

In the aerospace and aircraft industries, there is a critical need for materials that resist fluids such as jet fuel, Skydrol and PAO, as well as standing up to harsh weather, thermal cycling, and UV exposure. Fluorosilicone compound is specifically designed to perform in these chemical and environmental conditions, and Stockwell Elastomerics carries a wide range of solid and sponge fluorosilicone materials to support fast-turn prototyping requirements for gaskets and cushioning pads.

**Please contact Stockwell Elastomerics today for more details on our line of silicone and fluorosilicone materials.**



## Rocket Motor Pads

Solid-fuel rocket motors are cushioned with fabricated, conductive grounding pads to minimize the risk of ESD buildup in storage and during ground transportation. Stockwell Elastomerics custom fabricates conductive grounding pads from age-resistant silicone sponge rubber and carbon-filled conductive silicone rubber materials.

These specialty materials provide cushioning that remains consistent over a broad temperature range and retains surface conductivity for safe Electrostatic Discharge (ESD) grounding to the metal chock or carriage—even after years of outdoor exposure. Our RTV60-CON conductive adhesive is provided to bond the conductive pads to ground support equipment.

## Space Based Applications

Stockwell provides gaskets, seals, and other components requiring the use of high performance elastomers in a variety of applications for outer space. These applications include commercial and government rocketry, satellites, manned vehicles and robots, in addition to auxiliary and support equipment.

The unforgiving space environment requires ultra-high performance grade materials—those that can withstand high temperatures while promising ultra-low outgassing and low compression set. These rugged, reusable gaskets, seals, and molded components made from silicone, fluorosilicone, or other ultra-high performance elastomers, are core competencies for Stockwell. We also specialize in the fabrication of unique material combinations to meet the most challenging requirements.



## Portable Data Acquisition, Measuring, and Sensing Devices

### The Need for 'Ruggedization'

Portable data acquisition devices such as scanners, tag readers, and sensors are often required to be "ruggedized"—maintaining full functionality in outdoor conditions, food freezers, shipping terminals, and wet conditions. These units vary from hand-held or belt-suspended to cradle-mounted and anything in between.

### Sealing and Cushioning of Scanners and Readers

Stockwell Elastomerics regularly assists mechanical engineers in this growing and innovative business sector. The recent dominance of online ordering now places an increased emphasis on durability and ruggedization of these portable devices. Battery cover gaskets, door gaskets, and touchscreen gaskets are often fabricated from Poron® cellular urethane and silicone sponge. Smaller, battery-powered devices may require internal cushioning pads, such as in the battery compartment, to maintain power and functionality if the unit is dropped during use. From our experience, the gaskets and cushioning pads are often the last components specified; our sampling and prototyping capabilities exist to support this need.

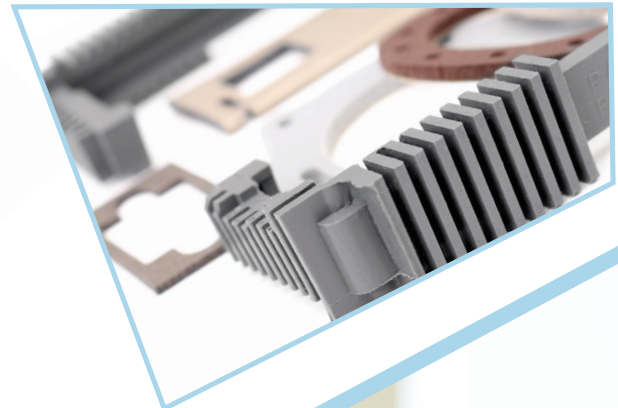


### High-Tech Portable Measuring and Sensing Devices

High-tech devices are no longer just used in laboratory settings under ideal conditions. Air monitoring, chemical analysis, and 3D scanning technologies are now used on the go, and they are more accessible than ever. Flame-rated and high-temperature silicone rubber can replace neoprene sponge for these gasket applications. The devices first responders rely on in emergency scenarios must be durable and require molded seals with heavier shock isolation capabilities. It is also beneficial for these devices to be ruggedized to extend product life.

### Water Jet Cut and Flash Cut Prototypes (Toolless)

The accumulated production tolerances of molded plastic housings, doors, and covers may cause situations that require changing the original gasket concept; our toolless cutting capabilities support your requirements for fast-turn gasket samples prior to the start of production. We inventory a range of gasketing and cushioning materials to support our rapid response to these common situations.



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# Advanced and Emerging Technologies

“Emerging technologies” covers a broad range of products. These newer, cutting-edge applications are often exposed to challenging environments: extreme temperatures, shock/vibration, and chemical volatility/contamination are just a few of the dangers these products can face. Stockwell’s technical knowledge and inventory of high performance elastomers is a perfect match for customers developing new products for these applications.

Stockwell Elastomerics’ production of custom gaskets for these new applications begin in low-to-medium volume quantities. Our rapid response and material expertise allow for quick turnaround on prototypes, and we offer valuable guidance as the material selection and gasket design phases develop.

These new products are often powered by sensitive electronics that could be susceptible to extreme temperature/shock, or could be conducting tests with very little margin for error or high risk of electronic noise contamination.

Customers in this sector also tend to use elastomers in yet-to-be defined environments. Stockwell has broad industry experience and can use cross-industry experience to transfer knowledge to customers in new applications. With our extensive material knowledge, we can caution customers against using unsuitable materials or promote overlooked benefits of others. Here are some examples:

## **Automated/Driverless Technology**

In this industry, we typically provide gaskets around the sensors and environmental seals on drone vehicles. Additionally, conductive metal-filled elastomers for EMI shielding provide a combination of tough environmental sealing, while blocking RF or electrical signal contamination.

## **Renewable Energy Sector**

Our wide range of materials knowledge serves these customers well, whether we are providing flame-rated cushioning pads for Lithium-Ion batteries, UL50 rated environmental gaskets for solar inverters, or platinum-cured silicone gaskets for fuel cells. For the latter application, ultra-pure gasket materials are required to prevent contaminating the fuel-cell reaction.

## **DNA sequencing/microfluidics**

Stockwell carries several platinum-cured FDA, USP Class VI, and RoHS-compliant silicones for use in genetic sequencing equipment—an outstanding choice due to its high purity. And, because of its high temperature resistance, these materials can also survive sterilization processes.

## **3D Printing**

3D printing is making the transition from purely scientific/industrial uses to commercial and consumer applications. The punishing temperature requirements on gaskets and seals, however, often require high-performance materials.

Stockwell offers a number of silicones ideally suited for these challenging applications. While commercial-grade elastomers may harden and take a compression set, our high-performance silicones are platinum-cured and can be post-cured to further enhance performance. They promise resistance to high temperatures (400° to 500°F) and compression set, have UL flame ratings, and can be low outgassing.

Stockwell Elastomerics continues to drive innovation in order to support the needs of leading-edge technology. Our mission is to help engineers meet their design goals by providing rapid-response prototypes and material samples.

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## Analytical Instrumentation

Analytical instrumentation presents a broad set of materials challenges. For example, the equipment may operate at temperature extremes or in various chemical/electromagnetic environments. As a result, a wide cross section of Stockwell Elastomerics' materials and production capabilities are leveraged in seal and pad solutions.

### Foam and Sponge Enclosure Gaskets

Compressible door and panel gaskets are typically required to maintain environments inside chambers and ensure testing validity. Design solutions often include Poron® cellular urethane and low out-gassing silicone foam or sponge gaskets. Prototype samples are fabricated in various material densities and thicknesses by water jet or flash-cutting processes for customers to validate the proper closures.

### Molded Sealing Gaskets

Molded low durometer silicone (10, 20 and 30 durometer Shore A) gaskets provide a performance advantage over foam or sponge materials for easily compressed enclosure gaskets where superior sealing is required. Designs using engineered plastic housings are attractive and cost less than metal housings, but the available closure forces may be reduced due the housing material, hinge limitations, and latch constructions, thereby requiring soft-sealing gaskets. A key benefit to the use of a soft, silicone-molded sealing gasket is the ability to incorporate sealing beads, or round cross sections, into the design. This enhances sealing performance at low closure forces.

Fluoropolymer seals are molded for systems inside the instrument, where chemically inert properties are required. Fluoropolymer sealing gaskets are often molded (rather than fabricated from sheets) to save on material costs, and custom molding permits round cross sections to enhance sealing properties.

### Electrical and Thermal

Design requirements for manufacturers of analytical instrumentation may also include Electromagnetic Interference (EMI) shielding gaskets around display panels fabricated from electrically conductive silicone rubber or metallized, coated fabrics. These materials guard instruments against electromagnetic interference that may be present in laboratory environments. Thermal interface pads may also be incorporated into the design of critical electronic components; these pads serve to transfer heat away from sensitive components and toward a heat sink.







# Medical Diagnostic Devices



## Custom-Molded Silicone

Stockwell Elastomerics' core products for the medical diagnostics industry are molded silicone components with high performance flexing capabilities and resilient silicone gaskets for sealing. Platinum-cure silicone components for high purity requirements are available in liquid-silicone (LSR) compounds and gum-base silicones (HCR). Silicone rubber has gained broad acceptance in the medical equipment industry for its combined properties of resilience, age resistance, and general inertness.

## Fabricated Gaskets and Cushioning Pads

Medical diagnostic devices may require gaskets for displays and hinged openings with low closure force to exclude dust and incidental moisture. Poron® cellular urethanes and low-density silicone foams meeting UL94 flame ratings are often specified to reduce noise in equipment designed for use near the patient. Stockwell Elastomerics' wide selection of silicone foams and sheet materials enables us to assist in the design phase with prototypes for evaluation.

## Electrically Conductive Components

Medical diagnostic devices may have requirements for Electromagnetic Interference (EMI) shielding gaskets to reduce device emissions and protect against interference from other units in patient care environments. We provide products in semi-conductive, carbon-filled silicone rubber, and electrically conductive, nickel-graphite-filled silicone to meet Electrostatic Discharge (ESD) grounding and EMI shielding requirements.

## Stockwell's Scope in Medical Equipment

Our application focus in the medical equipment industry is limited to the mechanical requirements of the device; we do not provide fabricated or molded articles intended for use in the body, or items that make direct contact with wounds or irritated skin.

## Our Commitment to Quality

Stockwell Elastomerics' Quality Management System is ISO9001-2015 registered. On request we can support requirements for APQP, including process capability, material certifications, lot traceability, and material test data.

## Airflow Management

Airflow management in enclosures, in clean rooms, and through HEPA filters requires gasketing materials that are readily compressed yet provide a long-term, positive sealing force. Ideally, they do not permanently deform over time (a property called compression set resistance).

### Enclosure Gaskets

Airflow management requirements inside enclosures and clean rooms used by the pharmaceutical and semiconductor industries call for gaskets that are easily deflected (soft). They must block airflow but resist taking a permanent compression set. The excellent compression set resistance properties of Poron® cellular urethane—when compared to certain closed-cell sponge products—make it an excellent option. Poron® gaskets with adhesive backings are available in a wide range of firmness and thickness options, ranging from 0.012" up to 0.500". Stockwell Elastomerics also provides adhesive-backed gaskets in slit-to-width rolls or cut to size.

### Cabin Air Filter Gaskets

Airflow management gaskets used in HEPA filter assemblies for aircraft cabin air purification are often made from silicone foam. Silicone foam does not support the growth of fungus and meets Federal Aviation Regulations (FARs) for flame resistance and smoke generation, along with UL94 V-0. To manage material costs, we provide adhesive-backed gaskets in slit-to-width rolls or in fold-out configurations. Contact us for samples to evaluate these cost-saving options.

### Air Plenum Gaskets

Air plenums and other air-diverting assemblies inside enclosures are enhanced by compressible gaskets with long-term compression set resistance. Poron® cellular urethane and silicone foam are often selected for these applications. If there are anticipated moisture concerns, closed-cell silicone sponge may be a more suitable alternative. Stockwell Elastomerics carries a full range of compression set-resistant Poron® cellular urethane, silicone foam, and closed-cell silicone sponge products. We apply pressure-sensitive adhesives on site to ensure the correct combination of properties for your application.



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<https://www.stockwell.com/industry/>



# About Our Materials

Stockwell Elastomerics' core business is the fabrication and molding of silicone rubber and related high-performance materials to support the technology sector. Maintaining a full inventory of our core materials in house enhances our ability to deliver quickly to meet customer needs.

Silicone rubber is a versatile elastomer able to withstand temperature extremes, aging, sunlight, and conditions that would deteriorate traditional rubber compounds. Silicone can be compounded to meet UL94 flame ratings, and it accepts additives for electrical and thermal conductivity.

- Solid silicone rubber
- Closed-cell silicone sponge rubber
- Closed and open-cell silicone foam
- High-purity silicones
- Fluorosilicone for fluorocarbon resistance
- Electrically conductive silicone for EMI shielding
- Thermally conductive silicone
- Semi-conductive silicone for ESD protection

Poron® cellular urethane foam is a non-silicone material that fits well with the technology sector and sets the standard for compression set resistance and product consistency.

## **Additional elastomeric materials and complimentary materials that deliver solutions:**

- Closed-cell sponges, including Neoprene, EPDM, Epichlorohydrin (ECH) and PVC/Nitrile blends
- Solid rubber, such as Neoprene, Buna-N, EPDM, and semi-conductive (ESD) Neoprene
- Formex® Electrical Insulating Polypropylene, Teflon®, and UHMW films
- Pressure sensitive adhesives that solve bonding challenges: acrylic, silicone, thermally conductive, electrically conductive, VHB, and low surface energy








# Vendor Partners

Providing solutions to design challenges requires great relationships with material suppliers. Without strong vendor partnerships, our ability to serve our customers would be diminished. Stockwell Elastomerics views the relationships with our key vendors as critical to our success. We have developed deep business and technical relationships; our key vendors look to us for critical *Voice of the Customer* feedback that ultimately enables Stockwell to have direct input on strategic product development activity.

## **The following are some of our strategic vendor partners:**

- Rogers Corporation for Bisco® Silicones and Poron® Materials
- Saint Gobain Tape Solutions for Norseal® Silicone Rubber
- Wacker Silicones for LSR materials
- Specialty Silicone Products for high-performance silicones
- Momentive Performance Materials for Liquid Silicone and Adhesives
- 3M Corporation for high-performance adhesive solutions
- ADCHEM (a division of Berry) for adhesive solutions



# Contributing to our Customers' Competitiveness in the Technology Equipment Sector

## Who We Are

Stockwell Elastomerics is a privately held, employee-owned (ESOP) custom manufacturer located in Philadelphia, Pennsylvania.

Our core competence is fabricating and molding silicone rubber and related high-performance elastomers. We are the only custom rubber products manufacturer of our size with in-house die cutting, compression and injection molding, custom fabrication, adhesive lamination, and water jet cutting capabilities. Our broad production capabilities enable multiple approaches to solving design challenges.

With our long tenure (founded in 1919), we leverage deep relationships with strategic vendor partners for the benefit of our customers.

## What We Do

Stockwell Elastomerics provides gaskets, custom components, and elastomeric materials for requirements where performance is critical to equipment function. We deliver design assistance, material samples, and prototypes for engineers and equipment designers in the technology equipment sector. Our observation is that gaskets and cushioning pads are often the last item specified; in response, we strive to support our customers in the critical stages of their product development through initial production.

Our Sales, Applications Engineering and Customer Service Team is here to support you. If your application is beyond our capability, we will try to suggest another resource—it's what we do here.



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